MESSAGE

FROM

THE PRESIDENT OF THE UNITED STATES

TRANSMITTING

A REPORT

OF

SECRETARY OF THE TREASURY,

RELATIVE

TO THE MEASURES WHICH HAVE BEEN TAKEN TO COMPLETE

AN

ACCURATE SURVEY

OF THE

COAST OF THE UNITED STATES;

IN

COMPLIANCE WITH A RESOLUTION OF THE SENATE, OF THE 26th ULT.

April 4, 1816,

Read and ordered to be printed for the use of the Senate.

WASHINGTON:

PRINTED BY WILLIAM A. DAVIS.

1816.

I transmit to the Senate a Report from the Secretary of the Treasury, complying with their Resolution of the 26th March, last.

JAMES MADISON.

April 4th, 1816.

№1	2007 „ 46½ 3828 „ 81½	833-46 317-68	1675 „ 92 4434 „ 42
2	5836-28 3886 „ 12	1185 „ 14 634-47	6110 „ 34 4223- 21
3	9722 „ 40 3658 „ 73	1819 „ 61	10333 „ 55 4573 „ 52
4	13381 „ 13 3685 „ 72	1819 „ 61	14907 „ 07 4607 „ 18
5	17066 „ 85 3895 „ 18½	1819 „ 61	19514 „ 25 4869 „ 01
6	20962 „ 03½ 966-20	1819 „ 61	24383 - 26 1207 - 77
	21928, 23½	1819-61	25591 „ 03

The Secretary of the Treasury, to whom the President of the United States referred the resolution of the 26th of March, 1816, requesting that information be laid before the Senate "in relation to such proceedings as have been had for completing an accurate chart of the coast, within the extent of twenty leagues from any of the shores of the United States; and in relation to such examinations and observations as may have been made with respect to St. George's Bank, and any other bank or shoal, and the soundings and currents beyond such distance to the Gulf Stream, in pursuance of the act of the 10th of February, 1807, entitled "an act to provide for surveying the coasts of the United States," has the honour to present the following

REPORT.....

That by this act of the 10th of February, 1807, the President of the United States was authorized and requested to cause a survey of the coast of the United States, and to employ proper persons in accomplishing the purposes prescribed in the act; for which a sum, not exceeding 50,000 dollars, was appropriated.

That, as the first step towards the execution of the act, it became necessary to procure from Europe the instruments to be used in the survey of the coast; but in consequence of the restrictive system and the difficulty of obtaining a proper agent, that step was unavoidably postponed until in the year 1811.

Mr. F. R. Hassler, the professor of mathematics at the Schenectady college, in the State of New-York, (a gentleman eminently qualified for the trust,) was employed, under the authority of the President, to proceed to London, and there to superintend the construction of the instruments.

That Mr. Hassler sailed from the United States in August, 1811, and arrived in England in the month of September following; but owing to the state of affairs between the two nations, and the war which ensued, the progress of the work committed to his care was greatly and unavoidably interrupted and retarded. He was informed, however, "that notwithstanding the war, he should continue in England until the objects of his mission should have been accomplished, provided the British government permitted it."

That, under these circumstances, Mr. Hassler was not able to complete his work, and return to the United States, until the month of October, 1815; when he arrived at the port of Philadelphia, and delivered to the director of the mint the instruments and books which he had been instructed to procure. It is stated by the director of the mint, that Mr. Hassler's duty has been well performed; and that, in his opinion, a superior collection of instruments, for the purpose contemplated, is not possessed by any government in Europe. A list of the instruments and books, and an account of the cost and charges accompany this report, marked, respectively, A. and B.

That instructions have been given to prepare the instruments for use; a plan for carrying into effect a survey of the coast has been submitted to the consideration of the President; and it is proposed to begin the work as soon as it is practicable. But the unexpended balance of the original appropriation having been carried to the surplus fund, it will be necessary to wait for the enactment of the general appropriation bill, in which a provision for the expense of prosecuting the survey is included.

All which is respectfully submitted.

A. J. DALLAS, *Secretary of the Treasury.*

Treasury Department, March 29, 1816.

A.

General List of Mathematical Instruments and Books destined for the survey of the Coast of the United States, delivered into the custody of Robert Patterson, esq. director of the mint in Philadelphia, by F. R. Hassler, after his return from the mission for this object in November, 1815.

1. One theodolite of 2 feet diameter, of very improved construction, silver arch, readings by three micrometer, miscroscopes, wire micrometers in the telescopes made by Mr. Edward Troughton.
2. Two double repeating theodolites of 12 inches diameter, on principles suggested by F. R. Hassler, with full vertical circle, double repeating, &c. made by the same.
3. Two double repeating circles on the principles of Bordie, of improved construction, vertical and horizontal circles both of 18 inches diameter, readings to the back telescopes, &c. made by the same.
4. Four double repeating reflecting circles of ten inches diameter, on principles suggested by F. R. Hassler, spiral levels for small vertical angles, &c. made by the same.
5. Four stands to the above, with artificial horizons of mercury, covered with a glass hat.
6. Two double repeating reflecting circles in all respects equal to those in No. 4, except no levels, made by the same
7. Two artificial horizons to the above, of mercury covered with a glass hat.
8. Two artificial horizons of plane glass with ground spiral level, the one of a dark glass, the other of plate glass blackened on the lower plane.
9. Two surveying theodolites of 9 inches diameter of common construction.
10. Two surveying compasses of one foot needle, construction directed by F. R. Hassler, silvered plates, needles inverting telescopes describing a full vertical spiral level, centre work for the stand; made by Thomas Jones.
11. Two alhidades for plane tables, construction invented by F. R. Hassler, telescopes mounted like those in transit instruments; made by the same.
12. Two centre works to the plane tables to be used with the above, and 2 sets of brass spring clamps to hold the paper on the table.
13. Two sets of apparatus for measuring base lines, by an arrangement invented by F. R. Hassler, giving an optical determination of the end points of the bars; each consisting of the following parts:
    (a.) Four iron bars upwards of 70 feet in length; not yet standarded, because they were intended to be cut to a proper standard, in the most authentic measures by F. R. Hassler.
    (b.) Various screw works and rollers for the motion of these bars and the boxes which they must be put in when in use.
    (c.) Four thermometers with Farenheit and centigrade scales, mounted to be fixed to the bars and the balls sheltered by projecting sides on the scales.
    (e.) A telescope arrangement to direct the boxes with the bars in the direction of the base lines.
    (f.) Three brass stands with motion work in the direction of three rectangular ordinates, carrying microscopes in which the object lenses consist of two halves of different foci, by which the object of cross lines on these stands is brought in the same focus with that of the ends of the bars, which are cut out, to admit a cobweb to spread over the ends, the optical contact of which two images determines the place of the ends of the bars, in like manner as in the Hadley's instrument, the image from the great mirror, and the object viewed directly.

14. One standard English measure of 82 inches in length divided on silver in tenth of inches, microscopes and micrometer for comparaisons and an arrangement with a cutting tool to divide scales from it made by Mr. Edward Troughton.
15. One iron toise standarded by Lenoir in Paris and compared with the standards of the observatory there.
16. One brass metree standarded by Lenoir in Paris from his brass mèter which was made at the same time and standarded at the temperature of melting ice, together with those distributed to the deputies of different nations, by the committee of weights and measures, compared also at the observatory of Paris with their standards.

    N. B. This brass meter of Mr. Lenoir being the only one in this metal made by the committee of weights and measures in Paris, gives therefore also the only means to a direct comparison of French and English measures without reduction for expansion of different metals, the latter having their standards in brass, and the former in iron.

    A certificate of the comparison of No. 15 and 16, accompanying them signed Arrage and Boward, and sealed by the seal of the observatory.
17. One iron meter standard by Lenoir.
18. One iron tool to file bars off perpendicularly in standarding measures.
19. An iron plane to use on metals and on wood.
20. One strong scale with accurate standarded English weights made by Edward Troughton.
21. Two standard sub-divided kylogrammes of parallelic pipedon, made by Fortin in Paris.
22. Two litres modeles with covers of ground glass plates standarded by the same.
23. Two transit instruments of very improved construction; telescopes of five feet illumination through the axis, shades to the object glasses, silver arched semi-circles with levels at the eye ends to point by spring contrepoises, &c. made by Edward Troughton.
24. Two astronomical clocks of the same improved construction as those lately made by the same artist and inventor, Wm. Hardy, for the observatories of Greenwich and Glasgow, spring scapement, silver-plated dial, compensation by a glass cylinder with mercury acting as the lens of the pendulum.
25. Two one day's box chronometers with silver dial plates, compensation of the balance and for short and long vibrations, the invention of the maker, Wm. Hardy.
26. One box chronometer of Brockbanks, of two days' going for the case of accidental omission of winding.
27. Two one day's box chronometers of the same.
28. One one day's box chronometer, of extraordinary good performance, of Grimaldi and Johnson.
29. Two one day silver pocket chronometers of Brockbanks.
30. One time piece showing the $\frac{1}{300}$ of a second, going only when in use, for determination of velocities of sound, falling bodies, &c. made by Wm. Hardy on the suggestion of F. R. Hassler.
31. One 6 feet achromatic telescope of Dallone, four inches aperture of the object glass, six astronomical and one terrestrial eye tube, a binder, the tube unscrewing in three pieces, mahogany stand in two parts, securing the telescopes in two places, for greater steadiness.
32. One 5 feet achromatic telescope of Dallone three and three quarter inches aperture of the object glass, one terrestrial and six astronomical eye tubes, lantern illumination by a small mirror in the centre, a binder, brass equatorial motion, shifting braces, mahogany folding stand and steadying rods.

33. One 5 feet achromatic telescope 4 inches aperture of the object glass, tube in two parts, for astronomical and one terrestrial eye tube, level on the tube, a binder, equatorial mahogany folding stand with steadying rods, made by Tully.
34. One 4 feet 8 inches achromatic telescope, 3 inches aperture of the object glass, 2 terrestrial and 4 astronomical eye pieces, tube in two parts, a binder, equatorial mahogany folding stands with steadying rods, by the same.
35. One three and a half feet achromatic telescope of two and three quarter inches aperture of the object glass, two terrestrial and three astronomical eye pieces; brass stands with steadying rods; made by Mr. Troughton.
36. One three and a half feet achromatic telescope of Dallone, two and three quarter inches aperture, simple brass tube, six astronomical and one terrestrial eye tube, without stand.
37. Three double wire micrometers of Dallone, on Mr. Troughton's construction, with prisms before the eye piece for objects near the zenith, two of them fitting the telescopes Nos. 31 and 32, and one those of Nos. 33, 34, 35, and 36.
38. One dynameter, or instrument to measure the magnifying power of telescopes, on Ramsden's invention; made by Dallone.
39. One top joint and socket for a telescope, for easy transportation in the fields, to fit any telescope.
40. Six mountain barometers, mounted in brass tubes; made by Mr. Troughton, in his improved construction.
41. Two thermometers, Farenheit's and Reaumer's divisions on silvered scales, going to boiling water; glass face and mahogany case, for the use of the observatories within doors; made by Edward Troughton,
42. Two thermometers on box-wood scales, brass shelters to the balls, for the use of the observatories before the windows; made by Edward Troughton.
43. Four detached spirit levels, mounted in brass, of two different sizes, for various purposes; made by the same.
44. Two sets of magnets, one of two large bars, one of four bars.
45. Two beam compasses, with double rods, one of different lengths, change of points, and one set to work on metals; one made by Wm. Cary and the other by Fidler.
46. Three proportional compasses, with perpendicular legs; made by Fidler, and divided and adjusted by Troughton.
47. Two steel rules, five feet long; made by Fidler.
48. Four steel right angled trangles, of two different sizes, to fit the before mentioned rulers; made by Fidler.
49. One cabestan head screw key, pins in three directions.

The following articles were added to the collection, to supply accidental losses or breakings, and for various accessory use:

1. Two sets of detached dark glasses.
2. Nine simple and double receding magnifyers.

N. B. Of these two articles there have been used already, to replace such as had been forgotten in various boxes of instruments, the above being the remaining ones.

3. Six square glass tubes, of proper size for the barometers.
4. Twelve spirit levels, in sizes for the instruments, tried by Mr. Troughton.
5. Three plates of parallel glass.
6. Two rolls of metal wire for the plum-lines.

B.

ACCOUNT upon the expenditure for Mathematical Instruments and Books, destined for the survey of the coast of the United States, procured by orders of the Treasury Department, and now deposited, with Robert Patterson, Esq. director of the Mint in Philadelphia, by F. R. Hassler, in fulfilment of his special mission to England for that object.

DR. *The Treasury Department of the United States* *to F. R. Hassler,* CR.

		£	s.	d.
1812. Jan. 20.	Paid to Alexander Galloway for the filing apparatus, rec't No. 1.	56	6	6
..	do. for the duplicate stamp receipt,	0	1	0
..	do. his workmen to bring the above to my house,	0	6	0
March 3.	To Alexander Galloway for additions to the above, account and receipt No. 2.	6	0	0
5.	To G. W. Nicol for books, account and receipt No. 3.	8	4	0
May 6.	Advanced to R. Fidler upon his work for the basse microscopes, receipt No. 4.	10	0	0
June 19.	Advanced to the above on account as above,	20	0	0
26.	David Cuthbert on his work,	5	0	0
..	To Grimaldi and Johnson for a chronometer in Greenwich observatory, receipt No. 6.	90	0	0
..	To William Cary, for a beam compass with double rods, receipt No. 7	10	15	0
Aug. 10.	Advanced to D. Cuthbert on his work,	3	0	0
22.	the same,	5	0	0
Sep. 5.	To M. Taylor, assistant astronomer at Greenwich for trial of Johnson's chronometer,	1	6	0
..	To the same for 2 copies of D. Maskelyne's tables,	1	12	0
12.	Advanced to D. Cuthbert on his work,	2	0	0
15.	the same,	2	0	0
22.	the same,	2	0	0
23.	Paid to Mr. Edward Troughton on account of instruments ordered of him, receipt No. 8.	200	0	0
26.	Paid to R. Fidler on his work, receipt No. 9.	20	0	0
..	to D. Cuthbert on his work,	4	0	0
30.	to the same on his work,	10	0	0
Oct. 9.	to the same on his work,	5	0	0
23.	For a board, box, bar, screws, &c. to try the basse apparatus,	1	10	0
10.	To Robert Fidler on his work, receipt No. 9.	20	0	0
30.	To Thomas Jones for two alhidales, bill and receipt No. 10,	28	0	0
31.	To D. Cuthbert the balance of his two bills, for work and materials, up to the 30th September last, account and receipt No. 11.	9	19	5
Nov. 2.	To R. Fidler, on his work, receipt No. 12.	20	0	0
5.	To the same on his work, do.	30	0	0
21.	To the same on his work, receipt No. 14.	30	0	0
23.	To the same on his work, do.	20	0	0
..	Advanced to D. Cuthbert on new account of work,	5	0	0
Dec. 4.	Paid to Thomas Jones for the two surveying compasses and two centre works to plane tables, receipt No. 15.	118	0	0
5.	For two pounds of mercury for an artificial horizon,	0	13	0
12.	To D. Cuthbert on his work,	10	0	0
19.	To R. Fidler on his work, receipt No. 16.	10	0	0
22.	To the same on his work, do.	15	0	0
		£799	12	11

		£	s.	d.
1811. Oct. 16.	Received from Messrs. Baring, Brothers & Co. on account of credit,	200	0	0
Nov. 21.	Received from the same on the credit of the Treasury Department,	300	0	0
1812. Feb. 4.	Received from the same on the credit of do.	300	0	0
Nov 5.	Received from the same on the same credit,	900	0	0
1815. Feb. 25.	Received from the trustees of Mr. Fidler's estate as dividend for £55 14s. at 2s. 5½d. per pound, as per No. 35.	6	16	11½
March 9.	Received from Messrs. Baring, Brothers & Co. on the credit of the Treasury Department,	200	0	0
10.	Received from the same on the same credit,	200	0	0
Aug. 10.	The same paid to Mr. Edward Troughton at various times, in consequence of credit given to him by me, on the credit of the Treasury Department,	600	0	0
2.	The same paid on triplicate receipt, signed by Mr. Troughton and myself jointly, in addition to the credit given to me by the Treasury Department, and as balance of Mr. Troughton's bill,	1,003	14	6
		£3,710	11	5½

DR. *The Treasury Department of the United States,* *to F. R. Hassler,* CR.

		£	s.	d.
	Brought over,	799	12	11
1812. Dec. 29.	To D. Cuthbert on his work,	5	0	0
1813. Jan. 15.	To R. Fidler, on his work, receipt No. 17.	30	0	0
22.	To the same on his work, do.	5	0	0
24.	To the same on his work, do.	10	0	0
25.	To the same on his work, do.	5	0	0
26.	To D. Cuthbert on his work,	10	0	0
31.	To Mr. W. Hardy, on account of the two clocks, receipt No. 18.	50	0	0
Feb. 1.	To Mr. E. Troughton on account of instruments ordered of him and expenditures to be made to others,	50	0	0
..	To the same by authorization to receive of Mr. Beasley in three weeks hence to the same purposes, receipt No. 20.	250	0	0
..	To D. Cuthbert by settlement of his bill to this day for work and materials, receipt No. 19, including all he received since 31st October, 1812,	13	9	1
..	For two sets of magnet bars bought occasionally,	0	18	0
Aug. 1.	Amount of the bill of purchases in France and occasionally in London, with expenses by account annexed to my fifth quarterly account, bill No. 25.	127	12	0
6.	To Thomas Jones on his work,	40	0	0
17.	To bookbinder Lovek, in bill No. 26.	2	11	0
28.	To R. Fidler for half of the bond of arbitrage,	2	2	0
Dec. 8.	Porterage of the clocks from Mr. Hardy,	0	10	0
17.	Two surveying theodolists of 9 inches, bought of Willock, bill No. 27.	36	10	0
24.	To Mr. William Hardy, balance on the two clocks, bill and receipt No. 28.	199	10	0
1814. Feb. 8.	To D. Cuthbert for general key to Cabestan head screws,	1	4	0
Sep. 10.	For a large trunk to pack instruments in,	1	0	0
Oct. 1.	To Mr. William Hardy on account of the chronometers, receipt No. 29.	49	10	0
12.	For the following books from Couriser in Paris, which were paid there on my account at the exchange of 22½ francs per pound sterling, viz:			
	2 copies Delambre's Astronomy, 120 francs.			
	2 Biots, 50			
	2 Connoissances des tems, 1816, 12			
	1 Zachs Suplem. aux tables d'Aberrat, 5			
	1 Almageste de Ptolomee par Halma, 50			
	Amount in France, 237 francs,	10	10	0
1815. Feb. 7.	Insurance for three months of instruments at Mr. Troughton's proportional part policy, No. 32.	4	12	6
Mar. 11.	Paid to Mr. E. Troughton on accoun of instruments and expenses for others as before, receipt No. 30.	300	0	0
		£2,004	12	6

	£	s.	d.
Brought over,	3,710	11	5½
	£3,710	11	5½

DR. *The Treasury Department of the United States* *to F. R. Hassler,* CR.

		£	s.	d.			£	s.	d.
	Brought over,	2,004	12	6		*Amount of all receipts brought over,*	3,710	11	5½
1815. June 29.	Paid to Mr. E. Troughton on account as before, receipt No. 31.	100	0	0	1815. August 6.	Balance due to F. R. Hassler,	13	13	6½
July 18.	For two trunks to pack instruments in,	2	12	6					
Aug. 2.	Mr. E. Troughton received from Messrs. Baring, Brothers & Co. on receipt signed by him and myself, per balance of his account, bill No. 36	1,003	14	6					
4.	To Mr. Brookbank for cleaning chronometers, bill No. 33.	5	5	0					
6.	Paid to Mr. Dallond for a dynameter, receipt No. 34.	3	12	6					
..	Mr. Troughton received by the credit given to him on Messrs. Baring, Brothers & Co. at various times for which they have his receipts,	600	0	0					
..	The following books were omitted to be put on account in their place, viz:								
	Bouvard nouvelles tables de Jupiter,	0	18	0					
	Gauss disquisitio de Elementis elliptices Palladis,	0	15	0					
	Lindeman table de Venus,	0	18	0					
	2 copies tables de Logarethmes, edition stereatipe, fc. 30								
	1 copy Zach Suplement aux tables d'Aberration, &c. 5								
	35								
	At the exchange mentioned in the separate account,	1	17	0					
		£3,724	5	0			£3,724	5	0

Philadelphia,

20th November, 1815.

F. R. HASSLER.

Books for the use of the Observatories and the Survey.

2 copies Delambre Astronomie. 3 vols. 4to.
2 do. Biot Astronomie. 3 vols. 8vo.
2 do. Borda Table decimales de logarithimes. 1 vol. 4to.
2 do. Wallaston's Catalogue of Fixed Stars, and Herschel's addition to Flamsted's Catalogue. Folio; bound together.
2 do. Callet tables portatives de logarithimes. 8vo.
2 do. Connoissances de tems. 1816. 8vo.
2 do. Zack supplement aux tables de abberation et Mutation. 1 vol. 8vo.
2 do. Markelynes Astronomical Tables. Folio.
3 do. Mendoza's Nautical Tables. 4to.
1 do. Almagesti de Ptolomee par Halmar. 4to.
1 do. Last years of Zack's Astronomical Correspondence.
1 do. Lindenau's tables de Mars. 4to.
1 do. do. Venus. 4to.
1 do. do. barometriques. 8vo.
1 do. Bode Uranagrophia. 1 vol. Atlas and Catalogue per arrum. 1 vol. folio, bound.
1 do. Philosophical Transactions. 1809. Part containing Troughton's method of hand dividing.
1 do. Flamsted, historia celestis. 3 vols. Folio.
1 do. Mudge's Survey of England. 3 vols. 4to.
1 do. Piazzi della Specola Astronomical di Palermo. 4to.
1 do. Taylor's Tables of Logarithms. 4to. bound.
1 do. Obers uber den Cometen. 8vo.
1 do. Schrocters Beobacktengen. 8vo.
1 do Gauss disquisitio de Elementis ellipstius Palladis.
1 do. Bouvard's nouvelles tables de Jupiter. 4to.
1 do. Memorial topographique publice, par le Depot de la Guerre a Paris. 6 vols. avec additions.

F. R. HASSLER.

The above instruments and books are now in my custody.

R. PATTERSON.

The following books, which should complete the collections made for the observatories and the survey, are contained in a box, which was forwarded from France to Guernsey, in 1813; on peace being made, returned to St. Malo, and Mr. Michaux in Paris undertook to forward it to Philadelphia; but it has not arrived.

3 copies Vega thesaures Logarithmoram. Folio.
3 do. Puissant traite de Geodelfic. 4to.
3 do. do. de Topographic. 4to.
2 do. Lalande histoire celeste Francaise. 4to.
2 do. Callet tables de Logarathimes. Stereotype.
2 do. Rebout tables de Venus.

2 copies Delamsbre Casse de systeme metrique. 3 vol. 4to.
2 do. do. abrege d'astronomie. 8vo.
2 do. do. tables astronomiques. 4to.
2 do. do. do. de Jupiter & Saturne. 4to.
2 do. Laplace Mecanique celeste & systeme du monde. 4 vols.
2 do. Bauckard's Table de la Lune. 4to.
2 do. Zacks tables portatives du Soleil. 8vo.
2 do. do. do. de la Lune. 8vo.
2 do. do. d'aberation abrigee.
1 do. do. do. 2 vols. 4to.
1 do. Ramond formules barometriques de la mecaniquo celeste.
1 do. Bode Uranagrophia Atlas & Catalogue per arum. Folio.
1 do. Connoisances de tems. 1812, 1813, 1814, 1815. 8vo.
1 do. Gauses disquisitiones anylitice.
1 do. Carte de la Comte de Neufchatel par Osterwald, as an exemplar of fine maps, drawing.

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